

A careful examination of the material in the American Museum of Natural History has brought to light another female specimen which would seem to agree very closely with Goding's *O. flaviguttula*, and I have no hesitation in so assigning it. This example bears a label showing it to have been taken at Newark, New Jersey, May 29, 1910. Several males and females of the author's *definita* are also included in that material, and seventeen more well marked examples, eleven females and six males, have been taken this past season at Litchfield, Conn. The length of this form as given in the key is excessive, and should read ♂  $4\frac{1}{2}$ -5 mm., ♀  $5$ - $5\frac{1}{2}$  mm.

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## NOTES ON THE CRAMBINÆ (LEPIDOPTERA).

BY W. T. M. FORBES,

ITHACA, N. Y.

A large part of the following memoranda are based on material collected in various parts of the southern states by the Cornell Biological Expedition in the summer of 1917, and by Prof. J. C. Bradley in his return trip through the same general region in the summer of 1918. The material has not quite all been mounted, but as it is a serious question when the mounting will be finished under present conditions, it has seemed best not to delay this paper further.

The discovery of various genera in which vein  $R_3$  (vein 9) has disappeared, forces us to an extension of Hampson's definition of the subfamily (Proc. Zoöl. Soc. London 1895, 921), but emphasizes the relative value of the characters of the female frenulum and condition of the cell of the hind wing, used by Ragonot in defining his two subfamilies Crambinæ and Ancyrolominæ (Ann. Ent. Soc. France (6), 10, 445-447, 1890). The subfamily may be defined as follows:

Pyralids with antennæ simple, laminate, or pectinate, without any special modifications; ocelli most often present; tongue rarely strong, sometimes absent; palpi porrect, beaklike, and sometimes very long; maxillary palpi large, and triangularly scaled; tibizæ with normal spurs. Fore wings with first A (1c) completely absent; usually with all veins from cell preserved,  $R_3$  or  $M_2$  sometimes lost, and  $R_4$  also

fused with  $R_5$  in *Raphiptera* and the new genus *Lorocrambus*; third A rudimentary as a rule, free. Hind wing with Sc and R anastomosing, with a strong fringe on base of Cu and three developed anals, in other characters of two principal types: (1) (Crambini) with frenulum multiple in female, cell widely open, the discocellular being reduced to a short spur attached to Cu stem, and  $M_1$  approximate or stalked with  $R_8$ ; (2) (Ancylolomiini) with frenulum simple in female, cell closed by a distinct though somewhat weak vein, and  $M_1$  widely separated from distal part of  $R_8$  at its origin from cell, and often somewhat weak. The tip of Sc is lost in the Crambine genus *Raphiptera*.

I should reject the two genera *Chalcoëla* and *Dicymolomia* from this group; their affinities are wholly with the genus *Glaphyria* and its kin, usually considered Pyraustinæ, but possibly worthy of a separate subfamily, based mainly on the character of the fringe on the base of Cu, which runs out diffusely into the outer part of the wing, diverging from Cu, and ends in a more or less striking tuft of spatulate scales. This group would be the Homophysidæ of Guenée, etc. The Schoenobiinæ I should separate primarily on the preservation of first A toward the margin of the fore wing, as this is a significant primitive character occurring in no other group of Pyralids known to me, and present in all Schoenobiinæ examined, even the strongly aberrant genus *Acentropus*. The fringe of hair on cubitus is in its weakest expression in the Crambinæ about like its fullest development in the Schoenobiinæ. I believe that *Loxotegopsis*<sup>1</sup> which lacks first A is not a Schoenobiid, but an aberrant Pyraustid. The Phycitinæ and Anerastiinæ, aside from their consistent loss of a radial, combine characters of the two tribes of Crambinæ. From the Ancylolomiini they differ in having R and  $M_1$  of the hind wing approximate, from the Crambini in the more distinctly closed cell, and simple female frenulum. Very few have the large triangular maxillary palpi common to both groups of Crambinæ. I have omitted *Uscodys* from the following key, as probably Schoenobiid, since first A is preserved. Sc and R are separate in the hind wing, a very rare character in either group. I have noted from the type of *Uinta oreadella* Hulst, that R of the hind wing is from the

<sup>1</sup> I consider "Loxotegopsis" an obvious misprint.

upper angle of the cell, which is closed; as one radial is lost and the habitus phycid there remains nothing to associate the genus with the Crambinae, and it will go to the Anerastiinae.

$M_1$  (6) hind wing widely separated from Sc (8) at the level of the end of the cell, cell closed, female frenulum simple (ANCYLOLOMIINI).

Fore wing without any indication of notch at middle of outer margin; R well separated from Sc toward base in hind wing,  $R_1$  free in fore wing;

$M_2$  lost ..... **Eufernaldia.**

Fore wing (in our species) with a more or less distinct notch at middle of outer margin (very weak in *Surattha*, which has  $M_2$  present).

Base of R widely separated from Sc. terminating practically opposite  $M_1$ .  
**Mesolia.**

Base of R terminating well above origin of  $M_1$ , usually closely approximated to Sc.

$R_1$  free, notch slight ..... **Surattha.**

$R_1$  normally anastomosing with Sc, notch stronger.

Fore wing five times as long as broad, outer margin strongly oblique ..... **Pseudoschœnobius.**

Fore wing about three times as long as broad, each half of outer margin of fore wing nearly vertical.

Upper discocellular long ..... **Prionapteryx.**

Upper discocellular very short or absent,  $M_1$  normally apparently continuous with base of R. .... **Mesolia.**

$M_1$  approximate to Sc + R at end of cell or stalked (CRAMBINI).

A secondary apex developed at  $M_2$ , the true apex truncate, obscure.

**Loxocrambus.**

Apex normal, at  $R_3$  or  $R_4$ .

$R_5$  stalked.

Two radials and a medial of fore wing and Sc and a medial of hind wing lost ..... **Raphiptera.**

Venation complete or practically so.

Antennæ uni-, or bipectinate in male ..... **Thaumatopsis.**

Antennæ laminate or simple ..... **Crambus.**

$R_5$  from cell.

$R_1$  anastomosing or connected with Sc.

$R_2$  stalked with  $R_{3-5}$ ; ocelli lost ..... **Iesta.**

$R_2$  from cell, sometimes imperfectly fused with stems of  $R_{3-5}$  but separate at origin.

Ocelli absent; tongue obsolete, palpi three times as long as head ..... **Diatræa.**

Ocelli present.

Tongue present, though weak; palpi three times as long as head; Sc of hind wing typically with free part very short ..... **Haimbachia.**

- Tongue present, though weak; palpi twice as long as head  
and more triangular; Sc of hind wing with free part  
long ..... **Argyria**, part.
- $R_1$  free.
- $R_2$  stalked, ocelli present ..... **Eoreuma**.
- $R_2$  free at origin.
- Front rounded, tongue distinct.
- Palpi projecting about length of head ..... **Argyria**.
- Palpi projecting about twice length of head .... **Platytes**.
- Front conical, or with a central cone.
- Tongue well developed,  $R_1$  arising from cell well before  
 $Cu_2$ , ocelli present ..... **Ommatopteryx**.
- Tongue rudimentary,  $R_1$  arising opposite or beyond  $Cu_2$   
ocelli often absent ..... **Chilo**.

#### Genus *Surattha* Moore.

*S. santella* Kearfott. Tucson, Ariz., July 22, 1917.

#### Genus *Prionapteryx* Stephens.

Dr. McDunnough calls my attention to the fact that the types of *Mesolia* and *Eugrotea* are congeneric, in fact closely related, so that the name *Eugrotea* is unavailable as used by Kearfott. The best way out would seem to be to divide the series considered *Eugroteas* by Kearfott according to the condition of  $M_1$  of the hind wing, and put those with  $M_1$  from the anterior angle of the cell, at nearly the same point as R, in *Mesolia*, and the rest in *Prionapteryx*. The first group also agrees with *Mesolia* in having a dentate t. p. line and include *olivella* and *huachucella* as well as *dentella*. Of the latter I have only seen *yavapai*, which has an even t. p. line like *Prionapteryx*.

*P. nebulifera* Steph. Brown's Mills, N. J., July 6, 1919 (F. H. Benjamin).

*P. yavapai* Kearf. Wellton, Yuma Co., Ariz., Aug. 6, 1917.

This series shows an extraordinary amount of variation in venation. Not one specimen matches Kearfott's figure. In one case  $R_5$  and  $M_1$  are stalked half way to the outer margin, and in another they are barely stalked, but generally they are free.  $M_2$  and  $M_3$  are stalked in six specimens, one of which shows only a rudiment of  $M_3$  on one side; they are united in seven. In the hind wing they are consistently united. Sc and R of the fore wing are normally connected by a very short cross-vein, but they often anastomose at a

point, and on one side of one specimen appear to become coincident, as in Kearfott's figure.

Genus **Mesolia** Ragonot.

**M. olivella** Grote. Camden, Ark., June 2, 1918.

This is the species which generally passes for *dentella*. The latter is considered by Barnes and McDunnough the same as *incertella*.

**M. huachucella** Kearfott. Mesquite near Mesilla Park, N. M., July 12, 1917; Lordsburg, July 13, 1917; Tucson, Ariz., July 22, 1917.

This species is very close to the type of the genus, and has  $R_1$  free.

Genus **Pseudoschœnobius** Fernald.

**P. opalescalis** Hulst. Deming, N. M., July 12, 1917.

Genus **Eufernaldia** Hulst.

This genus is quite a typical Ancyrolomid, though it has always been placed with the Crambid genera. It was taken at Marfa, Tex., May 15, 1918, and at Limpia Cañon in the Davis Mts., Tex., on July 7, 1917, at over 5000 feet elevation; both times at light in grass-land.

Genus **Raphiptera** Hampson.

I should interpret this genus as Crambid in the restricted sense, rather than Ancyrolomid. The cell is widely open and there is no trace of a vein from its end, so that it seems most probable that Sc has been lost, rather than  $M_1$  as Hampson indicates. The pattern is also Crambid. I have typical *minimella* from Anderson, S. C., June 5, 1917, and Leroy, Ala., June 11, 1917. Specimens from the vicinity of Ithaca (McLean Bogs, Tompkins Co., N. Y.) appear to be *argillacella* rather than *minimella*, but I am not at all sure the forms are distinct species. Fernald reports *minimella* from New York, but it may be from the austral part of the state. The *minimella* from Anderson were taken at a trap lantern in oak woods, and the one from Leroy in the same way on the bank of a creek in pine and oak woods. The *argillacella* from McLean on the other hand are confined to the heath-cover of a couple of peat-bogs, as is the species at Mer Bleue, Ontario.

Genus *Crambus* Fabricius.

In this genus the group with Sc anastomosing with  $R_1$  in the fore wing is larger than would be expected from Hampson's grouping. The eastern species with anastomosis include *C. albellus*, *hortucllus*, *trisectus*, *caliginosellus*, *zecllus* and *lutcolcllus* as well as doubtless *laciniellus*. A number of western species also show the character.

*C. quinquareatus* Zell. Biloxi, Miss., June 13, 1917; Needles, Cal., April, 1918.

It is obvious from Walker's description and type locality, that Walker's species *hastiferellus* is not this. I believe *hastiferellus* is a synonym of *leachellus*, with which its description agrees more closely.

*C. leachellus* Zinck.

Specimens from Mesquite, near Mesilla Park, and Deming, N. M., July 12, 1917, and Lampia Canyon, Davis Mts., Tex., July 7, appear to be a very pale race of this species. The fore wing is shaded with yellow and light brown, almost like *C. alboclavellus*, but the markings are about as in *leachellus* and *carpenterellus*. Unlike *leachellus* there is a distinct white marginal patch, over veins 3-5, contrasting with yellow areas above and below. I have also seen the form in the Barnes collection.

*Crambus biguttellus* new species.

General structure and habits of *C. albellus* Clem. Fore wing with  $R_1$  free from Sc,  $R_2$  stalked more than half way to apex (a third way in *C. albellus*). Apex blunt, not at all produced, outer margin distinctly excavate at middle, the bottom of the indentation at  $M_3$ .

Head and thorax white above, collar with a broad diffuse pale gray-brown band on each lobe. Abdomen dirty white. Antennæ light fuscous. Sides of palpi white above, fuscous below; maxillary palpi white, with a narrow black ring. Fore legs fuscous, distally gradually shading into white on coxæ; middle and hind legs white, with dirty white tarsi.

Fore wing silver white; base of costa pale yellowish brown; extreme costal edge blackish toward base; no other basal markings. Post-medial line yellowish, oblique outward from middle of costa to end of cell, where it bends an acute angle and runs into a rounded black spot on lower edge of cell at middle of wing. Thence it continues obliquely inward to a similar spot on middle of inner margin, but is very faint and broken. The upper spot is lightly edged with ochreous, the lower with hardly a trace of ochre edging. Subterminal line light yellow, running across apex, then sharply curving at  $M_2$  (vein 5) and

running closely parallel to outer margin, to anal angle. Two parallel lines trisect the space between the subterminal line and the apex, but fade out below, leaving a narrow continuous white margin. Terminal line fine, black at costa only, faintly continued to the notch. A yellow marginal shade below the notch, containing three black dots, in cells  $M_3$ ,  $Cu_1$ ,  $Cu_2$ , the middle spot notably weaker than the other two. Fringe white above notch, with a faint yellow tint, lead-gray below, but shading into white again at anal angle. Hind wing yellowish white, with pure white fringe. Under side of fore wing dirty yellowish white with the three black marginal dots larger but less intense; hind wing white. 11 mm. Two males, Schriever, La., June 17, 1917, taken at light at edge of woods. Cornell U. type and paratype number 464.

In Fernald's key this species will run to *C. pusionellus*, but it is much smaller, there is a distinct black spot on the middle of the wing, and the st. line is single except toward the costa, and much nearer the outer margin. From *C. albellus* it differs in wing-form, in having only three marginal dots above and below instead of five, in the two median black dots, and the white hind wings.

**Crambus immunellus** Zell., new race **minor**.

Our specimens are evidently varietally distinct from Zeller's South American *C. immunellus* (Stett. Ent. Zeit., 1872, Pl. 2, f. 6; Horæ Soc. Ent. Ross., 13, 47, 1877), but seem more closely related to it than to the northern *C. elegans*. This form is smaller than *elegans* or *immunellus*, the ground largely whitish with a rather distinct blackish shade along the costa, which is cut by the strong oblique white median and subterminal bars, but extends well beyond the latter. The blackish marking on the inner margin is smaller than in *elegans* and tends to be divided on A, but is black rather than brownish. The submarginal line is suffused except at the costa, with only traces of a pale center-line, and tends to be a little dentate, especially on its inner border. It turns sharply away from the outer margin toward the costa and meets the costa barely four fifths way out. The terminal dots are much heavier than in *C. elegans*, the first two being elongate and almost running together. The hind wing and under side appear paler than in *elegans*, and the labial palpi are white with heavy blackish bars covering half the surface of the second and third joints, instead of the solidly darker outer face of *elegans*. From typical *immunellus* the form may be distinguished by the suffused, mostly dark submarginal line, the smaller size, and probably more intensely black dorsal crescent; from *C. polingi* by the small size and separate terminal dots. 10 to 12 mm. Two males, both at light. Type Biloxi, Miss., June 13, 1917; paratype Schriever, La., June 17, 1917, Cornell U. number 465.

**C. teterrellus** Zell.

The dominant species in Alabama, Mississippi, and Louisiana.

**C. coloradellus** Fern. Mesquite, near Mesilla Park, N. M., July 12, 1917.



- C. intermedius** Kearfott. Gillett (Karnes Co.), Tex., June 25, 1917; Richmond, Tex., June 22, 1917; Columbus, Tex., May 23, 1918.  
**C. nevadellus** Kearf. Victorville, Cal., May 30, 1918.  
**C. dimidiatellus** Grt. Mesquite, near Mesilla Park, N. M., July 12, 1917; Phoenix, Ariz., May 7-8, 1918.

Genus **Haimbachia** Dyar.

The condition of the tongue seems unstable in closely related species of the Crambinæ, and the presence of the ocelli would seem a better character to separate this genus from *Diatræa*. Sc of the hind wing also appears a little shorter. I believe the genus should be extended to include *damon*, *squamulella*, *prosenes* and *parallela*. *H. damon* has reduced ocelli distant from the eye, and will form a transition to *Diatræa*, but I cannot see the connection with *Platytes*. *Squamulella*, *prosenes* and *parallela* do not seem to differ in any significant way from *placidella*, in fact *squamulella* is very close. The latter is generally confused with a related species which has a well-marked conical front, but if I am right in my determination the front is smooth in the true *squamulella*. *Parallela* is different in appearance, but the rest immediately suggest *placidella* in the course of the t. p. line close to the margin. *Venosalis* Dyar should be compared with *Diatræa*. (Ins. Ins. Men., 5, 87.)

Genus **Thaumatopsis** Morrison.

- T. pectinifer** Zell. Victoria, Tex., June 24, 1917, at light.  
**T. edonis** Grt. Brown's Mills, N. J., Sept. 1, 1919.

Genus **Ommatopteryx** Kirby.

- O. texana** Rob. New Braunfels, Tex., June 26, 1917; Texas Pass, Ariz., July 19, 1917, Needles, Cal., Apr. 1-6, 1918; Indio, Cal., May 1, 1918.

Examination of the genitalia shows that our species is structurally distinct from the old-world *O. ocellæa*. The principal difference is in the row of spines on the ædeagus, which consists of 13 or 14 rather short and similarly formed spines in our species, but in *ocellæa* has two types of spines, the twelve or fourteen proximal much like these of ours, but followed by a more distal series of nearly as many more slender closely crowded spines.



Genus *Argyria* Hübner.

Our species of this genus form two clean-cut groups. The typical section has palpi projecting about as far as the length of the head, rounded and not prominent front, and Sc free and nearly straight, as usually described. It includes *A. nivalis*, *rileyella*, *argentana*, *lacteella* and the majority of the tropical species. The other group, with *A. auratella* (including its southern form *pulchella*), *A. critica*, described below, and doubtless Dyar's *A. jonesella* from the neotropical region, has much longer palpi, as long as the thorax, more or less conical front and Sc anastomosing with R. The tongue is also weaker and the species approach *Diatraea*, differing mainly in the rather shorter, stouter palpi, presence of ocelli, and silvery coloring.

*A. rileyella* Dyar.

There is a specimen in our collection, taken by Dr. J. C. Bradley at Spring Creek (Decatur Co.) Ga., May 18-21, 1916; which definitely fixes this species as North American. Dr. Barnes has also a series from Southern Pines, N. C. It was described without locality, and does not appear in our lists.

*A. argentana* Martyn. Richmond, Tex., June 22, and Wharton, Tex., June 24, 1917.

*A. lacteella* F. Ala., La. and Miss., June, 1917.

*A. auratella pulchella* Walk.

This name may be applied to the small southern form of *A. auratella*, which does not appear to differ in markings. Devers. Tex., June 21, 1917.

*Argyria critica*, new species.

This form is very close to *auratella* and may not be distinct, but as it differs visibly in frontal structure, and will run differently in Dyar's key (Ins. Ins. Men., 1, 111), it may receive a name.

Front rounded out, about a quarter as far as width of eye, and much less prominent than in *A. auratella*. Male antennæ not quite so broad as in male *auratella*. Sc and R of fore wing anastomosing. Silver white, marked with golden yellow. Head yellow, face white with yellow borders; vertex broadly white. Palpi yellow, white on upper side and at tips. Collar yellow with a white middorsal band. Thorax white with a triangular golden yellow patch on each side of disc, partly covered by the white tegulæ. Under side white, front of fore coxæ, remainder of fore legs and outer face of middle legs yellow. Abdomen white.

Fore wing white, costal edge finely edged with yellow, hardly showing above. A broad, somewhat irregular oblique median fascia from costa at three fifths, to inner margin at two fifths, extending somewhat outward along costa and inward along inner margin, but not out along inner margin. It is partly edged with brown and black scales. There is no trace of yellow on distal half of inner margin. Terminal line umber brown, fringe yellow, shining, rather deeper at base. Hind wing white. Under side of fore wing with a slight yellow tint, deepening on the fringe. 15 mm. Gibsonville, N. C., June 3, 1917. Type and paratype males in Cornell U. collection, type number 466. Trenton, Ont., July 6, 1911; Caldwell, N. J., July 30, 1904; Mt. Airy, Pa. (P. Laurent); New Brighton, Pa., July 5-Aug. 9; Everglade, Fla., Apr. 8-15; Hastings, Fla., Apr.; paratypes in Barnes collection. Utica, N. Y., July 14, 1918 (C. R. Crosby).

Our species of *Argyria* may be separated as follows:

Fore wing with transverse golden fascia, palpi long,  $R_1$  joining Sc.

Outer half of inner margin yellow ..... *auratella*.

Larger, 16 mm. .... race *auratella*.

Smaller, 10 mm. .... race *pulchella*.

Outer half of inner margin white ..... *critica*.

Fore wing with faint transverse line or none, palpi short,  $R_1$  free.

Head white, palpi largely white.

Vertex all yellow, fore wing with a black subapical bar, 10 mm.

..... *lacteella*.

Vertex white in center, no subapical bar, 18 mm. .... *nivalis*.

Head and palpi deep yellow.

A golden streak along inner margin, no transverse markings. .... *argentana*.

Inner margin wholly white; a faint excurved transverse line and apical streak ..... *rileyella*.

#### Genus *Platytes* Guenée,

*P. multilineatella* Hulst. Theodore, Ala., June 12, 1917; Biloxi, Miss., June 13, 1917.

*P. panalope* Dyar. Biloxi, Miss., June 13, 1917.

#### Genus *Eoreuma* Ely.

*E. densellus* Zell. Sabine River Ferry, La., opposite Orange, Tex., June 20, 1917; Devers, Tex., June 21.

The specimens show definitely the characters of *Eoreuma*, with  $R_1$  free and  $R_2$  stalked.

#### Genus *Chilo* Zincken.

"*Diatraea*" *alleni* and *differentialis*, and "*Chilo*" *forbesellus* and *comptulalis* have  $R_1$  free like *Chilo*, but lack ocelli, like *Diatraea* and

*Iesta*. They would seem to go together, and with our present tendency to emphasize ventational characters would naturally be placed in *Chilo*. The larva of the type of *Chilo* differs from that of *Diatræa* in having only two lengths of hooks on the prolegs, and having the circle open on the outer side, so that when the larvæ of other species become known we are likely to have collateral evidence.

Genus *Iesta* Dyar.

*I. lisetta* Dyar. Ft. Myers, Fla., May, 1916; J. C. Bradley; Leroy, Ala., June 11, 1917.

Genus *Diatræa* Guild.

*D. evanescens* Dyar. Biloxi, Miss., June 13, 1917; Schriever, La., June 17; Richmond, Tex., June 22.

*D. saccharalis* F.

The early stages of this species show some unexpected characters, necessitating a widening of the definition of the subfamily. The larva shows the general characters of the family Pyralidæ, with simple setæ, bisetose prespiracular wart, iv and v of the abdomen on the same tubercle, and a complete circle of irregularly triordinal hooks on the prolegs. The other characters are as follows: Vertex closed, adf. ending abruptly about a third way up to vertex; front small and quite narrow. Prothorax with cervical shield normal; beta higher than alpha, delta higher than gamma, and slightly behind beta, gamma, epsilon and rho forming nearly an equilateral triangle, closer together than the other setæ. Prespiracular and subventral each with two setæ, horizontally placed. Meso- and metathorax similar, with ia + b, iia + b; iv + v on a small plate, and iii on the posterior edge of a large one; vii of two setæ (like the *Galleriina*, *Crambus* has a single seta), lateral minute primaries on a large plate; scutellum large, chitinized, without setæ. Abdomen (A<sub>3</sub>-6) normal, with iii nearly above spiracle, iv above and slightly behind v on the same tubercle, vii of three small setæ, the posterior slightly the longest; hooks of prolegs irregularly bi- and tri-ordinal. A<sub>2</sub> similar, the setæ vii in a triangle, A<sub>1</sub> with 2 setæ vertically placed. A<sub>7</sub> has two horizontally placed setæ. A<sub>8</sub> has the spiracles enlarged, facing back and much nearer dorsal line, with iii directly in front; the plates of i and ii fused across the dorsal line and vii single. On A<sub>9</sub> ii is fused across the dorsal line as in many Tortricids, iii (rho) is minute on

the lower edge of the plate of i, iv and vi are lost, vii simple. These characters are crambid except for the preservation of a second seta at the bases of all the true legs; the type differs from the Galleriinae in the nearly vertical, rather than horizontal placing of the setæ iv and v on the abdomen, the partly triordinal, rather than uni- and biordinal hooks, and the placing of the setæ of A<sub>9</sub> which are in a nearly vertical series. *Chilo phragmitellus* also has the double setæ on T 2 and 3, so I suspect Fracker's specimen of *C. plejadellus* was defective; *phragmitellus* differs in having rho of the prothorax rather lower than epsilon and distant from gamma as well as the different proleg mentioned above, but has the characteristic last spiracle of *Diatraea*.

The pupa of *D. saccharalis* is similarly aberrant, and also shows some characters of the Galleriinae. It is typical of the Pyralidæ, but will run to the Galleriinae in Miss Mosher's key, on account of the short maxillæ, less than half as long as the fore wings, and obscure pilifer. There is no middorsal ridge on the body and the sculpture is of raised reticulations rising into pyramidal points, rather than of spines. The prothorax is Galleriid, nearly half as long as the mesothorax. The other characters are: head with anterior rugosities, obscuring the sutures, prothorax nearly  $\frac{1}{2}$  mesothorax in greatest length, mesothorax with prominent sharp shoulders at base of wings, overhanging deep grooves on the prothorax; labrum on ventral surface of body; maxillæ  $\frac{1}{2}$ , the fore legs meeting behind them; labial palpi lanceolate, as long as middle width of tongue, max. palpi a minute triangle at base of middle legs, fore femora visible; A<sub>10</sub> well set off by a dorsal and lateral transverse groove, with shallow lateral furrow; cremaster obsolete, represented by a system of pyramidal points on last three segments, without obvious setæ.

Genus *Loxocrambus* new genus.

This form is evidently a derivative of *Crambus*, differing mainly in the reduced costal venation and very early separation of M<sub>1</sub> from Sc and R in the hind wing. It will run to *Culladia* in Hampson's key, but differs in wing form, and in the anastomosis of Sc and R. The two genera appear to be separately derived from different groups of *Crambus*. So far as I know, the secondary apex at M<sub>3</sub> is unique in the Pyralids.

Head about as in *Crambus*. Male antennæ slightly prismatic, tongue very weak, but coiled. Ocelli present. Eyes large. Thorax and legs scaly, normal. Fore wing with the apex rounded over, truncate, with a slightly increased curvature over  $R_{3+4+5}$ , but with the apparent apex at  $M_3$ . Cu-stem higher than usual in the wing, with a very wide space between it and second A, but without any trace of first A. Three radials only, the first short, running into Sc, which ends free in the membrane; the other two also free, and not quite reaching the margin.  $M_1$  free, normal,  $M_2$  and  $3$  connate, cell open, third A obsolescent, free, as usual. Hind wing with base of R obsolete,  $M_1$  apparently arising free, a third way out from base, but obscurely connected with  $Sc + R$ , which immediately diverge from it and separate from each other two thirds way out to the apex. Cell open, with hardly a trace of the discocellular, abnormally short on the anterior side, as indicated by the early separation of  $M_1$  from  $Sc + R$ , but abnormally long on the lower side,— $Cu_2$  arising more than half way out on the wing, widely separate from  $Cu_1$ .  $M_2$  and  $3$  stalked. All anals normal. Type: *L. canellus* n. sp.

***Loxocrambus canellus* new species.**

Light clay color, streaked with white on the veins. Head white, palpi shaded with clay color on outer side. Legs dirty white, fore legs darkest, as usual. Thorax apparently white (greasy in all my specimens), the side of the collar and tegulæ clay color. Fore wing with costa and cell suffused with white, leaving a little darker shading between the veins, and some blackish scaling in the upper outer portion of the cell. Cell  $M_1$  white, except narrowly along the veins, from discal cell to outer line, indicating the fold. Inner line even, dark gray, forming an acute angle over end of cell, enlarging into a black spot and then fading out, but more or less traceable to middle of inner margin. It tends to show an ocellate spot just above A. Outer line dark gray, fine, even, about two thirds way from inner line to apex, running parallel to outer margin as far as  $M_2$ ; then turning obliquely in, and running nearly straight across to anal angle. Terminal space white above  $M_3$  and clay color below, with concolorous veins. Three black spots in interspaces at apex, set well back from margin. Fringe concolorous, hind wing white. Under side white, immaculate, a little darkened toward costa of fore wing. 15 mm. Four males, Biloxi, Miss., June 13, 1917, at light. Type and paratypes in Cornell U. collection, No. 467.

The larva is possibly a borer, as the moth becomes greasy much more readily than *Crambus*.

***Loxocrambus mohaviellus* new species.**

Similar to *L. canellus*, but noticeably darker and slightly larger.

Pearl gray, shaded with ochreous brown, especially above the anal vein out to the post-medial line, and along the costal edge beyond. Head pearl gray, much darker than *L. canellus*; the palpi darker on the outer side. Disc of thorax concolorous, the sides of the collar and tegulae darker and browner gray. Fore wing dull ochreous, as far as the post-medial line, the costal edge and inner margin below vein A pearl gray. A streak of blackish and white dusting between Sc and R, and more diffuse streaks in outer part of cell, below Cu and above and below A. A strong white streak along Cu. Post-medial line whitish followed by brown the brown darkening into black dots opposite end of cell and on Cu; the line obscure below Cu<sub>2</sub> in the type, and wholly obscure in the paratype. Post-medial region pearl gray, streaked with white on the veins, except A, and on the lower interspaces. St. line deep brown, followed with white. Terminal space pale pearl gray, less yellowish than in the post-medial region, shading into pale brown at costa, and straw yellow along dorsal part of outer margin. Two terminal dots, located as in *L. canellus*. Terminal line in base of fringe black on costa, obsolete below. Fringe light, with a black line in outer part, and white scale-tips. Hind wing and legs pearl gray. Under side pearl gray, terminal dots as above, and lines in fringe brown. 20 mm. Victorville (Mohave River), Cal., April 30, 1918, at light in the town. Type and paratype male Cornell U., No. 468.

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## MISCELLANEOUS NOTES AND RECORDS OF LOCAL LEPIDOPTERA, WITH THE DESCRIPTION OF A NEW FORM.<sup>1</sup>

BY FRANK E. WATSON,

NEW YORK, N. Y.

The following records were taken, unless otherwise stated, from my collecting notes, in the belief that they will be of use for state and local lists and it is hoped that they will prove of interest as well. I have also included the more interesting observations which were made while on an automobile trip, through New Jersey and Pennsylvania, during July, 1917, as a guest of Mr. G. C. Hall. These notes are enclosed in brackets and Mr. Hall should be credited with the writer for them.

<sup>1</sup> Read, in part, before the New York Entomological Society.